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Dietary Changes in Korean American Immigrants: Implications for Chronic Disease Risk

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The first Korean immigrants came to the US in 1903, when Korean workers arrived in Hawaii. However, the large wave of immigration only began with the Immigration Act of 1965. Today, Korean populations exist throughout the US, but the largest groups reside in California and New York, where the majority are post-1965 migrants and their children. The Korean population in Hawaii is relatively small, about 24,000 of the well over one million nationwide, but is more evenly divided between descendants of the group from the early 1900's and recent immigrants[1].

A person has a shift in lifestyle and environment after immigration to a new country, and these changes can result in alterations to chronic disease risk[2]. In particular, ethnic groups like Koreans, who have a dietary tradition that is very distinct from the Western style, may go though a significant dietary transition, even though food habits are fundamental to most cultures and thus may change more slowly than other aspects of culture.

Several researchers have been focusing on diverse aspects of Korean Americans' diets, including dietary quality, nutritional status, and changes in food habits and dietary intake, although the studies are relatively few compared to those for Japanese and Chinese. Some studies have shown significant differences in diet by acculturation stage that was measured by various methods.

The Multiethnic Cohort Study in Hawaii and Los Angeles included more than 500 Koreans at baseline, 1993-1996, most of whom were women living in Hawaii. Thus, it was possible to compare health-related behaviors and the diets of Korean American women by place of birth: the first generation (immigrants) who were born in Korea and the second or subsequent generations born in the US[3]. The study showed several differences between the two groups. The average body mass index (BMI), a measure of obesity, was higher in US-born Korean women (23.6) than in those born in Korea (22.1) after adjustment for age and education, although both mean values were in the normal range of 18.5 to 24.9. The proportion who were overweight or obese (BMI ≥ 25) was three times as high in US-born women (31.4 %) as in Korea-born women (9.4%). US-born Korean American women showed more westernized dietary characteristics compared to those born in Korea. For example, as shown in Table 1, US-born women consumed more total fat (57.8g/day) and fat as a percentage of energy (28.8%) than did Korea-born women (44.9g/day, 22.6%), which may explain in part the higher proportion of those who were overweight or obese among the US-born women.

A traditional Korean diet is high in sodium intake, derived mainly from Kimchi, soup, and dried or salted fish, all of which are very popular in the Korean diet. US-born Korean women consumed less sodium (2,808mg/day) than did Korea-born women (3,378mg/day). However, the intake of both groups was still higher than the upper limit of 2,300mg recommended by the Dietary Guidelines for Americans[4]. Calcium intake by Korean Americans was low, much less than the recommended value. The main reason for this is the low consumption of dairy products, which is also true of the traditional Korean diet. US-born women consumed more cheese than did Korea-born women. However, total dairy product consumption was still less than one serving per day in both groups, well below the recommended three servings per day[4]. Intakes of vitamin C and β-carotene were higher in Korea-born women than in US-born women. Some of these differences in vitamin intakes can be explained by differences in intake of vegetables and fruits by the two groups. US-born women consumed less vegetables and fruits than did Korea-born women: for vegetables and fruit, 4.2 and 2.7 servings in US-born women, 5.2 and 3.5 servings in Korea-born women.

These findings from Koreans in the MEC Study generally agree with the results of previous studies on the diets of Korean Americans. For example, the diet and health practices of Korean Americans were examined by acculturation level in a nation sample of about 350 adults[5,6]. This study reported that more acculturated Korean Americans consumed more American food and less Korean food,

Table 1.– Daily nutrient intakes of Korean American women in the Multiethnic Cohort in Hawaii and Los Angeles, 1993-1996+

Nutrient~	US-born (n=274)	Korea-born (n=218)
Energy (kcal)	1746 ± 904	1734 ± 913
Total fat (g)	57.8 ± 34.8	44.9 ± 35.1***
Calcium (mg)	577 ± 359	580 ± 363
Iron (mg)	12.9 ± 8.9	13.4 ± 9.0
Sodium (mg)	2808 ± 2066	3378 ± 2087*
Vitamin C (mg)	152 ± 138	194 ± 140**
β-Carotene (mcg)	4537 ± 4172	5487 ± 4215*
Folate (mcg)	280 ± 225	321 ± 227
Dietary fiber (g)	19.0 ± 14.2	21.5 ± 14.4
% Energy from fat	28.8 ± 8.0	22.6 ± 8.1***
% Energy from protein	14.2 ± 3.2	14.7 ± 3.3
% Energy from carbohydrate	55.7 ± 10.0	61.9 ± 10.1***

+ Adapted from Park et al. (in press). Mean ± standard deviation. Adjusted for age, education, BMI, smoking status, and physical activity.
~Intakes were from foods only, not from dietary supplement.
* P < 0.05, **P < 0.01, *** P < 0.001 for differences between the two groups.

and that American foods were adopted the most at breakfast and the least at dinner. They also reported that higher acculturation was associated with higher body weight. Likewise, a study in California found that obesity (BMI > 30) was more prevalent in Korean American men than in Korean men in Seoul, and that acculturated Korean American men were 14 times more likely to be obese than men in Seoul[7]. More acculturated Korean Americans in the Greater New York metropolitan area also had higher intakes of total fat (as percent energy), while the less acculturated group consumed more sodium and dietary fiber. The more acculturated group tended to eat more bread, cereal, ham, green salad, chocolate, and candies[8].

The same trends have been reported for adolescents. A study in California found that 134 Korean American adolescents had a lower energy and cholesterol intake but a higher percentage of energy from fat, and consumed cookies, sweets, and soda more frequently, compared with 471 adolescents living in Korea[9].

Thus, although the findings from these studies varied somewhat, the acculturation of Korean Americans seemed to be associated with an increased proportion of overweight or obesity, high intake of energy from fat and lower intake of fruit and vegetables.

A rapid economic change in South Korea after the 1960's led to a dietary and nutrition transition, associated with decreased plant food consumption and with increased animal food consumption, percentage of energy from fat and body weight[10]. According to the 1998 National Health and Nutrition Survey in South Korea, however, fat intake (41.5 g, 19% of total energy) and obesity prevalence (BMI ≥ 30, 1.7% for men and 3.0% for women) were still low and vegetable intake (283.5 g/day) was still very high, compared to western countries and even to other Asian countries[11]. These results indicate that the vegetable-centered traditional dietary culture is still dominant in South Korea. There have also been strong movements to retain the traditional diet and to pursue healthy foods since the mid 1980's, when chronic diseases associated with the Western diet, characterized by high energy and fat intake, became a major health concern in South Korea[11].

Therefore, it is important to provide Korean Americans with education about the desirable aspects of both the traditional Korean and the Western diets. For example, nutrition education might focus on keeping fruit and vegetable intakes high and fat intake low, decreasing sodium intake, and increasing low fat dairy product and whole grain consumption. Such practices should be helpful in maintaining a healthy BMI, as well as in reducing the risk of hypertension, cardiovascular diseases, and certain types of cancer.

For more information on the Cancer Research Center of Hawaii, please visit our website at www.crch.org.

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